Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of:	)	
	)	
The Amendment of Part 97 of the	)	
Commission's Amateur Radio Service	)	
Rules to Reduce Interference and	)	
Add Transparency to Digital Data	)	
Communications	)	RM-11831
	)	
	)	
	)	
To: The Chief, Wireless	)	
Telecommunications Bureau	)	

Reply to the Comments of Timewave Technology, Inc.,
HRD Software LLC, by and through Randall R. Gawtry

1. Obscured digital content is not even in the *same league* as early introductions of Single Sideband (SSB) and Radio Teletype (RTTY). Frankly, I'm surprised that the author thinks there were parallels in their early adoption by amateurs and the introduction and use of proprietary digital codes at issue in this proceeding. There was never an intent to obscure 3rd party reception with either of those modes. Or, with early Packet radio either. Clearly, Winlink and its use of Automatic Repeat Query (ARQ) and compression in consort with its own code Winmor, PacTors 2 and 3, and other codes *openly advertises obscurity as a desirable attribute*. Nothing is left to doubt, as I and others have said, when its operating guidelines include a Security section that *brags about how it is almost impossible for 3rd party listeners to intercept content in a coherent fashion.*[1] Expressed intent to

[1] See http://www.la3f.no/faste/digi/winlink/ExpressTutorial1130a.pdf Section II (C), page 3. "Security."

obscure is overwhelming. While some argue that it is only intent in original code creation that is at issue. How can that be so, since its user base now says that obscurity is a *desirable attribute*?[2]

2. Winlink has opened a "window" into its database.[3] The window has shown us what amounts to a 21-day moving collection of emails relayed through its system. And, in looking through the window, we've seen hundreds of emails with inappropriate content. Everything from boat part purchases to real estate transactions. And, medical appointments, airplane reservations, online gambling, car dealerships, home furnishings, pizza parlors, banks, financial institutions, and more. The list goes on and on. Oh, but yes they get deleted, if caught, and eventually by the 21-day clock if not. But the perpetrators have violated Part 97 with impunity. Perhaps in large part because those sending sensitive content don't yet realize there's now an open window. And, at the end of 21 days, the evidence is wiped away. Again, in my opinion, an example of collective behavior driven by the assumption of effective encryption. I surely wouldn't give out my credit card number over the air as one Winlink emailer did if I thought it could be seen by others.

3. For the sake of brevity, before the advent of computers, sound cards and specialized modems, RTTY used frequency shift keying (FSK) to create mark and space frequencies. FSK literally did shift the transmitter oscillator frequency back and forth by the desired amount, be it 170Hz, 400Hz, or some other desired shift. Switching of the transmitter oscillator frequency initiated by a teletype machine. Similarly, received audio tones were detected, and the mark and space signals to the teletype machines were created via a receiving converter. Nothing esoteric. Hundreds of circuits were available, and of course, hardware in the form of teletype machines, mostly inexpensive military surplus from World War II. Openly decodable and usable by anyone interested and the

[2] See https://ema.arrl.org/ares/winlink-2000/
[3] See https://winlink.org/content/us_amateur_radio_message_viewer

message traffic flew all over the globe. No barriers other than the space required for the hardware. That is, if you could take the noise and the oil flying all over.

4. SSB, even in its first uses in the early 1950's, *never blocked or impeded* any amateur from being able to openly copy what was transmitted.[4] [5] Any communications receiver designed to receive CW had a beat frequency oscillator (BFO) that could easily tune and listen to content. Many amateurs, including myself, used receivers with BFOs to receive SSB before the introduction of product detectors in later communications receiver designs. I used a popular SSB transmitter adapter, manufactured by Heathkit, and adapted my AM/CW transmitter for SSB transmissions. A few minor adjustments, and my inexpensive early adaptation was on the air and was used for about 5 years in the mid to late 1960s.

5. ARQ is at issue in the way it is now implemented with some codes in consort with data compression, but it hasn't always been that way. The Tucson Amateur Packet Radio Corporation (TAPR) developed X.25 Packet in the early 1980's.[6] It employed a simple Cyclic Redundancy Check (CRC) checksum in each transmitted data packet along with ASCII text data. The idea being that if the designated receiving station did not receive content that exactly matched that CRC checksum, it sent back an ARQ to resend the packet in its entirety. Certainly, no intent to hide the content. As I often watched on my "dumb" RS-232 ASCII terminal, strings were repeated several times, but it was all there for all to monitor. Redundant, yes, occasionally, but it was all there. TAPR offered inexpensive modem kits. Several manufacturers also offered inexpensive modems.[7] Packet was, at least then, a completely open digital mode in that its elementary ARQ did not convolute or obscure in any way what was transmitted between linked/connected

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[4] The Central Electronics 10A was introduced in 1952.
[5] There were several commercial manufacturers of early SSB transmitters, including Central Electronics, Heathkit, Hallicrafters and Collins Radio.
[6] See https://www.tapr.org/pr_intro.html
[7] MFJ, AEA, and Kantronics for a few.

stations. My "dumb" terminal was replaced with a $50 Model 43 Teletype, an RS-232 tractor-fed dot matrix printer terminal.

6. To summarize, *there is no parallel* in the history of amateur radio. No modes that have created a ***barrier*** to 3rd party listeners as have the Winlink and PacTor 2 and 3 codes. The use of digital codes along with unique ARQ and compression techniques that prevent receipt by any but the intended linked station is unique to this situation. I used to think that the price of a rather expensive modem was the only barrier. That is not true. What is true is that *even an expensive modem, designed to receive and transmit PacTors 2 and 3, cannot meaningfully decode transmitted content unless it is linked with the transmitting station.* Amateur radio's future depends upon its ability to attract young people to it. And, tied with it, our country's interest in expanding STEM education. Gone forever is the old AM shortwave listener track. But, the need for young people to be able to listen meaningfully to ongoing digital transmissions using simple sound card devices is real and it's now. It's crucial. Perhaps not all codes with soundcards, but with stand-alone modems equipped to send and receive codes, transmissions should all be meaningfully decodable by all listeners. And, that is not where we are right now. Precisely *why* RM-11831 must be taken to Rulemaking and adopted.

Respectfully Submitted,

/s/

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